

**DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION
RCRA Corrective Action**

Facility Name: Burlington Environmental, Inc., d.b.a. Philip Services Corp
Facility Address: 1701 East Alexander Avenue, Tacoma, Washington 98421
Facility EPA ID No.: WAD 020257945

1. Has **all** available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMUs), Regulated Units (RUs), and Areas of Concern (AOCs)), been **considered** in this EI determination?

X If yes, check here and continue with #2 below.

If no, reevaluate existing data, or

If data are not available, skip to #6 and enter "IN" (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental indicators (EIs) are measures being used by the RCRA corrective action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EIs developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Current Human Exposures Under Control" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While final remedies remain the long-term objective of the RCRA corrective action program the EI are near-term objectives which are currently being used as program measures for the Government Performance and Results Act of 1993, GPRA). The "Current Human Exposures Under Control" EI are for reasonably expected human exposures under current land- and groundwater-use conditions only, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA corrective action program's overall mission to protect human health and the environment requires that final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

Duration/Applicability of EI Determinations

EI determinations status codes should remain in RCRAInfo national database only as long as they remain true (i.e., RCRAInfo status codes must be changed when the regulatory authorities become aware of contrary information).

2. Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be “contaminated”¹ above appropriately protective risk-based “levels” (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA corrective action (from SWMUs, RUs or AOCs)?

	<u>Yes</u>	<u>No</u>	<u>?</u>	<u>Rationale/Key Contaminants</u>
Groundwater	X			See below
Air (indoor) ²		X		
Surface Soil (e.g., <2 feet)			X	
Surface Water			X	
Sediment			X	
Subsurface Soil (e.g., >2 feet)	X			See below
Air (outdoor)		X		

_____ If no (for all media), skip to #6, and enter “YE,” status code after providing or citing appropriate “levels,” and referencing sufficient supporting documentation demonstrating that these “levels” are not exceeded.

___X___ If yes (for any media), continue after identifying key contaminants in each “contaminated” medium, citing appropriate “levels” (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.

_____ If unknown (for any media), skip to #6 and enter “IN” status code.

Rationale and Reference(s): Philip owns and operates a permitted TSD facility on 17 acres in Tacoma’s tideflats, adjacent to Commencement Bay and between the Blair and Hylebos waterways. Land use in this area is heavily industrial. In the 1930s, the property was part of a tidal marshland. Dredge spoil was placed on the property in the 1940s and early 1950s and a freshwater marsh formed. Prior to the mid-1970s, the marsh was filled with sand, gravel, and various waste materials, including lime waste sludges, dredge spoils, ground-up automobile interiors (auto fluff), and demolition debris. From 1970 to 1975, an oil storage and waste oil recycling facility, which included an unlined oil pond, occupied a portion of the site (Parcel A).

¹ “Contamination” and “contaminated” describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based “levels” (for the media, that identify risks within the acceptable risk range).

² Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggests that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

Groundwater flow in the uppermost fill aquifer is generally in a west-southwest direction towards Alexander Avenue and the Blair Waterway. Groundwater levels in the lower alluvial aquifer are affected by tidal fluctuations and flow directions vary due to tidal influence – the time-average groundwater flow direction appears to be toward the northwest.

In July 2002, Philip submitted a draft comprehensive RI report for the Tacoma facility to the Department of Ecology. The RI report is currently under review.

Groundwater: A number of wells and piezometers in the fill aquifer (CTMW-1, CTMW-6, CTMW-10, PZ-1, PZ-6, as well as MW-1 on the nearby Potter property) contain light non-aqueous phase liquids floating on groundwater. Volatile organic compounds (VOCs) that exceed the MTCA Method C cleanup criteria for industrial properties are chloromethane (CTMW-17), vinyl chloride (CTMW-11, CTMW-23), 1,2-dichloroethane (CTMW-17), benzene (CTMW-13, CTMW-16, CTMW-17, CTMW-18, CTMW-20), tetrachloroethene (CTMW-5, CTMW-13, CTMW-23), trichloroethene (CTMW-5), and 1,4-dioxane (CTMW-7, CTMW-9). No SVOCs were detected in groundwater at concentrations exceeding the MTCA cleanup levels. TPH-diesel concentrations exceed the MTCA cleanup goal (500 ug/l) in a fill aquifer well and two piezometers (CTMW-21, PZ-7, PZ-9) and in an alluvial aquifer well (CTMW-9). TPH-lube oil was detected at concentrations exceeding the MTCA cleanup level (500 mg/l) in piezometers PZ-7 and PZ-9. No PCBs were detected in any of the groundwater samples. Arsenic exceeds the cleanup goal (0.000058 mg/l) in all wells. There are also exceedences in barium, cadmium, chromium, lead, and nickel. [*Annual Groundwater Analysis Report, PSC Tacoma Facility, Tacoma, Washington*; 15 April 2000]. The complete nature and extent of groundwater contamination in both the fill and alluvial aquifers is unknown.

Surface soil/subsurface soil: Elevated concentrations of arsenic, cadmium, chromium, copper, lead, and zinc has been detected in auto fluff fill. Oily contamination is present in the fill material in the vicinity of monitoring wells CTMW-1, CTMW-6, and CTMW-10. Soil samples taken during the GeoProbe Step-Out Investigation exceeded existing cleanup standards for TPH-diesel and TPH-gasoline. Semivolatile organic compounds exceeding Method C cleanup criteria included benzo(a)anthracene, chrysene, and ideno(1,2,3-cd)pyrene. [*Draft Final Interim Action Work Plan, Philip Services Corp., Tacoma Facility, Tacoma, Washington*; May 2000]

- Are there **complete pathways** between “contamination” and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table
 Potential **Human Receptors** (Under Current Conditions)

“Contaminated” Media	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food ³
Groundwater	No	No	No	Yes	-----	-----	No
Air (indoors)	No	No	No	-----	-----	-----	-----
Soil (surface, e.g., <2 ft)	No	No	No	?	No	No	No
Surface Water	No	No	-----	-----	No	?	?

³ Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.)

Sediment	No	No	-----	-----	No	?	?
Soil (subsurface e.g., >2 ft)	-----	-----	-----	Yes	-----	-----	No
Air (outdoors)	No	No	No	No	No	-----	-----

Instructions for Summary Exposure Pathway Evaluation Table:

1. Strike-out specific Media including Human Receptors' spaces for Media which are not "contaminated") as identified in #2 above.
2. Enter "yes" or "no" for potential "completeness" under each "Contaminated" Media -- Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations some potential "Contaminated" Media - Human Receptor combinations (Pathways) have dash spaces ("---"). While these combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

_____ If no (pathways are not complete for any contaminated media-receptor combination), skip to #6, and enter "YE" status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).

X If yes (pathways are complete for any "Contaminated" Media - Human Receptor combination), continue after providing supporting explanation.

_____ If unknown (for any "Contaminated" Media - Human Receptor combination), skip to #6 and enter "IN" status code

Rationale and Reference(s):

Residences: There are no residential areas at the facility, immediately adjacent to the facility, or above the contaminated groundwater.

Workers: Workers at the facility are not exposed to contaminated subsurface soils and groundwater, unless they have been uncovered.

Day care: There are no known day care businesses at the facility or nearby.

Construction: Construction and remediation activities may expose at the facility or nearby may expose workers to contaminants in groundwater and subsurface soils.

Trespassers: The facility is fenced and locked. While there is a chance that trespassers may gain access to the facility by climbing the fence, this institutional control satisfactorily interrupts this pathway.

Recreation: There are no recreation activities at the facility. Recreational use of the nearby waterways is limited, but present. It is unknown whether any contaminated groundwater reaches nearby waterways. The extent of groundwater contamination, and its potential impact on surface water or sediments, has not been determined.

Food: There maybe some subsistence and other fishing or food collection activities in and along the nearby waterways. It is unknown whether any contaminated groundwater reaches nearby waterways. The extent of groundwater contamination, and its potential impact on surface water

or sediments, has not been determined.

- 4 Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **“significant”**⁴ (i.e., potentially “unacceptable” because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable “levels” (used to identify the “contamination”); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable “levels”) could result in greater than acceptable risks)?

 X If no (exposures can not be reasonably expected to be significant (i.e., potentially “unacceptable”) for any complete exposure pathway) - skip to #6 and enter “YE” status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to “contamination” (identified in #3) are not expected to be “significant.”

_____ If yes (exposures could be reasonably expected to be “significant” (i.e., potentially “unacceptable”) for any complete exposure pathway) - continue after providing a description (of each potentially “unacceptable” exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to “contamination” (identified in #3) are not expected to be “significant.”

_____ If unknown (for any complete pathway) - skip to #6 and enter “IN” status code

Rationale and Reference(s): There are no ongoing construction activities at the Philip/BEI-Tacoma facility. Any investigation or remedial activities are conducted under a site safety plan to avoid exposure to contaminated subsurface soils and groundwater.

In a letter dated July 21, 2000, Philip Services Corporation notified the Tacoma Public Utilities of the possibility that contamination from the facility may have migrated down a utility corridor. The letter contained information about the potential health hazards of the contamination, protective clothing and safety equipment, and decontamination procedures. Philip Services requested information enclosed in the letter be forwarded to appropriate supervisors and work crews so that utility and construction workers are properly protected prior to working in the area. The letter has also been sent to neighboring facilities.

- 5 Can the “significant” **exposures** (identified in #4) be shown to be within **acceptable** limits?

_____ If yes (all “significant” exposures have been shown to be within acceptable limits), continue and enter “YE” after summarizing and referencing documentation justifying why all “significant” exposures to “contamination” are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).

_____ If no (there are current exposures that can be reasonably expected to be “unacceptable”), continue and enter “NO” status code after providing a description of each potentially “unacceptable” exposure.

⁴ If there is any question on whether the identified exposures are “significant” (i.e., potentially “unacceptable”) consult a human health risk assessment specialist with appropriate education, training and experience.

_____ If unknown (for any potentially “unacceptable” exposure), continue and enter “IN” status code.

Rationale and Reference(s): _____

6. Check the appropriate RCRAInfo status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

YE - Yes, “Current Human Exposures Under Control” has been verified. Based on a review of the information contained in this EI Determination, “Current Human Exposures” are expected to be “Under Control” at the Burlington Environmental, Inc. (BEI) (a wholly-owned subsidiary of Philip Services Corporation) facility, EPA ID No. WAD 020257945, located at 1710 E. Alexander Avenue, Tacoma, Washington under current and reasonably expected conditions. This determination will be reevaluated when the Agency/State becomes aware of significant changes at the facility.

_____ NO - “Current Human Exposures” are NOT “Under Control.”

_____ IN - More information is needed to make a determination.

Completed by _____ /s/ _____ Date 8/03
Kaia Petersen
Hydrogeologist

Supervisor _____ /s/ _____ Date 8/03
K Seiler, Supervisor
Hazardous Waste and Toxics Reduction, Southwest Regional Office
Department of Ecology

Locations where references may be found:

Department of Ecology, Southwest Regional Office, Central Files
P.O. Box 47775, Olympia, Washington 98504-7775, or
300 Desmond Drive, Lacey, Washington 98503

Contact telephone and e-mail numbers

Kaia Petersen
(360) 407-6359
kpet461@ecy.wa.gov

FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.

**DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION
RCRA Corrective Action**

Facility Name: Burlington Environmental, Inc., d.b.a. Philip Services Corp
Facility Address: 1701 East Alexander Avenue, Tacoma, Washington 98421
Facility EPA ID No.: WAD 02025 7945

1. Has all available relevant/significant information on known and reasonably suspected releases to the groundwater media, subject to RCRA corrective action (e.g., from solid waste management units (SWMUs), regulated units (RUs), and areas of concern (AOCs)), been considered in this EI determination?

If yes, check here and continue with #2 below.

If no, reevaluate existing data, or

If data are not available, skip to #8 and enter "IN" (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental indicators (EI) are measures being used by the RCRA corrective action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EIs developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Migration of Contaminated Groundwater Under Control" EI

A positive "Migration of Contaminated Groundwater Under Control" EI determination ("YE" status code) indicates that the migration of "contaminated" groundwater has stabilized, and that monitoring will be conducted to confirm that contaminated groundwater remains within the original "area of contaminated groundwater" (for all groundwater "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While final remedies remain the long-term objective of the RCRA corrective action program, EIs are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Migration of Contaminated Groundwater Under Control" EI pertains ONLY to the physical migration (i.e., further spread) of contaminated ground water and contaminants within groundwater (e.g., non-aqueous phase liquids or NAPLs). Achieving this EI does not substitute for achieving other stabilization or final remedy requirements and expectations associated with sources of contamination and the need to restore, wherever practicable, contaminated groundwater to be suitable for its designated current and future uses.

Duration / Applicability of EI Determinations

EI determinations status codes should remain in RCRAInfo national database only as long as they remain true (i.e., RCRAInfo status codes must be changed when the regulatory authorities become aware of contrary information).

2. Is groundwater known or reasonably suspected to be “contaminated”¹ above appropriately protective “levels” (i.e., applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA corrective action, anywhere at, or from, the facility?

 X If yes, continue after identifying key contaminants, citing appropriate “levels,” and referencing supporting documentation.

 If no, skip to #8 and enter “YE” status code, after citing appropriate “levels,” and referencing supporting documentation to demonstrate that groundwater is not “contaminated.”

 If unknown, skip to #8 and enter “IN” status code.

Rationale and Reference(s): Burlington Environmental, Inc. (BEI), a wholly-owned subsidiary of Philip Services Corporation (Philip), owns and operates a permitted TSD facility on 17 acres in Tacoma’s tideflats, adjacent to Commencement Bay and between the Blair and Hylebos waterways. Land use in this area is heavily industrial. In the 1930s, the property and neighboring properties were part of a tidal marshland. Dredge spoil was placed on the properties in the 1940s and early 1950s and a freshwater marsh formed. Prior to the mid-1970s, during the operation of the Don Oline Landfill, the marsh was filled with heterogeneous mixture of sand, gravel, and various waste materials, including lime waste sludges, dredge spoils, ground-up automobile interiors (auto fluff), and demolition debris. From 1970 to 1975, an oil storage and waste oil recycling facility, which included an unlined oil pond, occupied a portion of the site (Parcel A).

Resource Recovery, Inc., a transportation subsidiary of BEI is in the southwest part of the property. Neighboring properties include the former CleanCare Corporation to the east, the ProLogis property to the east, City of Tacoma property to the west, the Emerald Services facility to the southwest, and the Potter property to the south.

In July 2002, Philip submitted a draft comprehensive RI report for the Tacoma facility to the Department of Ecology. Groundwater elevation maps in the RI report show an asymmetric, northwest-southeast trending mound in the central portion of the Philip property. The groundwater mound indicates the shallow unconfined fill aquifer being recharged in this area. In general, the direction of groundwater flow appears to be radially outward from the mound toward the perimeter of the Philip property, primarily to the northeast and southwest. Groundwater levels in the deeper confined alluvial aquifer are affected by tidal fluctuations and flow directions vary due to tidal influence, but the predominant flow direction appears to be to west towards Commencement Bay.

¹ “Contamination” and “contaminated” describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriate “levels” (appropriate for the protection of the groundwater resource and its beneficial uses).

A number of wells and piezometers in the uppermost fill aquifer (CTMW-1, CTMW-6, CTMW-10, PZ-1, PZ-6 on the Philip property, as well as MW-1 on the nearby Potter property) contain light non-aqueous phase liquids (LNAPL) floating on groundwater. Volatile organic compounds (VOCs) that exceed the MTCA Method C cleanup criteria for industrial properties are chloromethane (CTMW-17), vinyl chloride (CTMW-11, CTMW-23), 1,2-dichloroethane (CTMW-17), benzene (CTMW-13, CTMW-16, CTMW-17, CTMW-18, CTMW-20), tetrachloroethene (CTMW-5, CTMW-13, CTMW-23), trichloroethene (CTMW-5), and 1,4-dioxane (CTMW-7, CTMW-9). No SVOCs were detected in groundwater at concentrations exceeding the MTCA cleanup levels. TPH-diesel concentrations exceed the MTCA cleanup goal (500 ug/l) in a fill aquifer well and two piezometers (CTMW-21, PZ-7, PZ-9) and in an alluvial aquifer well (CTMW-9). TPH-lube oil was detected at concentrations exceeding the MTCA cleanup level (500 mg/l) in piezometers PZ-7 and PZ-9. No PCBs were detected in any of the groundwater samples. Arsenic exceeds the cleanup goal (0.000058 mg/l) in all wells. There are also exceedences in barium, cadmium, chromium, lead, and nickel. [Refer to *Draft Comprehensive RI Report, Philip Services Corporation, Tacoma Facility, Tacoma, Washington*, dated July 3, 2003].

Philip addressed the LNAPL plume with the construction of interceptor trenches in 1999 and 2000.

The Tacoma facility was built upon a portion of the Don Oline Landfill. The complete nature and extent of groundwater contamination in both the fill and alluvial aquifers as a result of the former landfill is unknown. Some neighboring properties are located on the footprint of the former landfill. Soil and groundwater investigations have occurred on the CleanCare property. Potential soil and groundwater contamination on the nearby ProLogis property, and hopefully the extent of the landfill footprint, should be investigated under an agreed order currently being negotiated between the property owners and the Department of Ecology's Toxics Cleanup Program (TCP).

TCP and Ecology's Hazardous Waste and Toxics Reduction (HWTR) Program recognize that there is an areawide groundwater contamination as a result of the former Don Oline Landfill. HWTR and TCP have agreed to address soil contamination individually on the neighboring properties under separate mechanisms, including permits, agreed orders, or consent decrees. Ecology intends to address the issues concerning areawide groundwater under an agreed order or consent decree with multiple potentially liable parties (PLPs).

3. Has the **migration** of contaminated groundwater **stabilized** (such that contaminated groundwater is expected to remain within "existing area of contaminated groundwater"² as defined by the monitoring locations designated at the time of this determination)?

_____ If yes, continue, after presenting or referencing the physical evidence (e.g., groundwater sampling/measurement/migration barrier data) and rationale why contaminated groundwater is expected to remain within the (horizontal or vertical) dimensions of the "existing area of groundwater contamination"².

² "existing area of contaminated groundwater" is an area (with horizontal and vertical dimensions) that has been verifiably demonstrated to contain all relevant groundwater contamination for this determination, and is defined by designated (monitoring) locations proximate to the outer perimeter of "contamination" that can and will be sampled/tested in the future to physically verify that all "contaminated" groundwater remains within this area, and that the further migration of "contaminated" groundwater is not occurring. Reasonable allowances in the proximity of the monitoring locations are permissible to incorporate formal remedy decisions (i.e., including public participation) allowing a limited area for natural attenuation.

X If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the “existing area of groundwater contamination”), skip to #8 and enter “NO” status code, after providing an explanation.

If unknown, skip to #8 and enter “IN” status code.

Rationale and Reference(s): The Philip Tacoma facility is built on a portion of a former industrial waste landfill, along with the former CleanCare facility and nearby properties. The extent of the landfill, along with soil and groundwater contamination from the landfill, has not been determined.

Hopefully the nature and extent of the landfill footprint will be investigated under an agreed order currently being negotiated between the ProLogis property owners and the Department of Ecology’s Toxics Cleanup Program (TCP). An attachment to the agreed order will be a work plan to investigate soil and groundwater contamination on the ProLogis property.

4. Does “contaminated” groundwater **discharge** into **surface water** bodies?

If yes, continue after identifying potentially affected surface water bodies.

If no, skip to #7 (and enter a “YE” status code in #8, if #7 = yes) after providing an explanation and/or referencing documentation supporting that groundwater “contamination” does not enter surface water bodies.

If unknown, skip to #8 and enter “IN” status code.

Rationale and Reference(s): _____

5. Is the **discharge** of “contaminated” groundwater into surface water likely to be “**insignificant**” (i.e., the maximum concentration³ of each contaminant discharging into surface water is less than 10 times their appropriate groundwater “level,” and there are no other conditions (e.g., the nature, and number, of discharging contaminants, or environmental setting), which significantly increase the potential for unacceptable impacts to surface water, sediments, or eco-systems at these concentrations)?

If yes, skip to #7 (and enter “YE” status code in #8 if #7 = yes), after documenting: 1) the maximum known or reasonably suspected concentration³ of key contaminants discharged above their groundwater “level,” the value of the appropriate “level(s),” and if there is evidence that the concentrations are increasing; and 2) provide a statement of professional judgment/explanation (or reference documentation) supporting that the discharge of groundwater contaminants into the surface water is not anticipated to have unacceptable impacts to the receiving surface water, sediments, or eco-system.

If no (the discharge of “contaminated” groundwater into surface water is potentially significant), continue after documenting: 1) the maximum known or

³ As measured in groundwater prior to entry to the groundwater-surface water/sediment interaction (e.g., hyporheic) zone.

reasonably suspected concentration of each contaminant discharged above its groundwater “level,” the value of the appropriate “level(s),” and if there is evidence that the concentrations are increasing; and 2) for any contaminants discharging into surface water in concentrations³ greater than 100 times their appropriate groundwater “levels,” the estimated total amount (mass in kg/yr) of each of these contaminants that are being discharged (loaded) into the surface water body (at the time of the determination), and identify if there is evidence that the amount of discharging contaminants is increasing.

_____ If unknown, enter “IN” status code in #8.

Rationale and Reference(s): _____

6. Can the **discharge** of “contaminated” groundwater into surface water be shown to be “**currently acceptable**” (i.e., not cause impacts to surface water, sediments or eco-systems that should not be allowed to continue until a final remedy decision can be made and implemented⁴)?

_____ If yes, continue after either: 1) identifying the Final Remedy decision incorporating these conditions, or other site-specific criteria (developed for the protection of the site’s surface water, sediments, and eco-systems), and referencing supporting documentation demonstrating that these criteria are not exceeded by the discharging groundwater; OR 2) providing or referencing an interim-assessment,⁵ appropriate to the potential for impact, that shows the discharge of groundwater contaminants into the surface water is (in the opinion of a trained specialists, including ecologist) adequately protective of receiving surface water, sediments, and eco-systems, until such time when a full assessment and final remedy decision can be made. Factors which should be considered in the interim-assessment (where appropriate to help identify the impact associated with discharging groundwater) include: surface water body size, flow, use/classification/habitats and contaminant loading limits, other sources of surface water/sediment contamination, surface water and sediment sample results and comparisons to available and appropriate surface water and sediment “levels,” as well as any other factors, such as effects on ecological receptors (e.g., via bio-assays/benthic surveys or site-specific ecological Risk Assessments), that the overseeing regulatory agency would deem appropriate for making the EI determination.

_____ If no (the discharge of “contaminated” groundwater can not be shown to be “**currently acceptable**”), skip to #8 and enter “NO” status code, after documenting the currently unacceptable impacts to the surface water body, sediments, and/or eco-systems.

⁴ Note, because areas of inflowing groundwater can be critical habitats (e.g., nurseries or thermal refugia) for many species, appropriate specialist (e.g., ecologist) should be included in management decisions that could eliminate these areas by significantly altering or reversing groundwater flow pathways near surface water bodies.

⁵ The understanding of the impacts of contaminated groundwater discharges into surface water bodies is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration to be reasonably certain that discharges are not causing currently unacceptable impacts to the surface waters, sediments or eco-systems.

_____ If unknown, skip to #8 and enter "IN" status code.

Rationale and Reference(s): _____

7. Will groundwater monitoring/measurement data (and surface water/sediment/ecological data, as necessary) be collected in the future to verify that contaminated groundwater has remained within the horizontal (or vertical, as necessary) dimensions of the "existing area of contaminated groundwater?"

_____ If yes, continue after providing or citing documentation for planned activities or future sampling/measurement events. Specifically identify the well/measurement locations which will be tested in the future to verify the expectation (identified in #3) that groundwater contamination will not be migrating horizontally (or vertically, as necessary) beyond the "existing area of groundwater contamination."

_____ If no, enter "NO" status code in #8.

_____ If unknown, enter "IN" status code in #8.

Rationale and Reference(s): _____

8. Check the appropriate RCRAInfo status codes for the Migration of Contaminated Groundwater Under Control EI (event code CA750), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (attach appropriate supporting documentation as well as a map of the facility).

_____ YE - Yes, "Migration of Contaminated Groundwater Under Control" has been verified. Based on a review of the information contained in this EI determination, it has been determined that the "Migration of Contaminated Groundwater" is "Under Control" at the Burlington Environmental, Inc. (a wholly-owned subsidiary of Philip Services Corporation) facility, EPA ID No. WAD 020257945, located at 1701 E. Alexander Avenue, Tacoma, Washington 98421. Specifically, this determination indicates that the migration of "contaminated" groundwater is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the "existing area of contaminated groundwater" This determination will be re-evaluated when the Agency becomes aware of significant changes at the facility.

 X NO - Unacceptable migration of contaminated groundwater is observed or expected.

_____ IN - More information is needed to make a determination.

Completed by Original signed by Kaia Petersen Date July 2, 2004
Kaia Petersen
Hydrogeologist

Supervisor Original signed by K Seiler Date July 2, 2004
K Seiler, Supervisor
Hazardous Waste and Toxics Reduction, Southwest Regional Office
Department of Ecology

Locations where references may be found:

Department of Ecology, Southwest Regional Office, Central Files
P.O. Box 47775, Olympia, Washington 98504-7775 or
300 Desmond Drive, Lacey, Washington 98503
(360) 407-6300

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